

EUROPE, MIDDLE EAST & AFRICA

Epoxy Curing Agents

Diluents | Accelerators | Adhesion
Promoters | Specialty Resins | Additives



Amicure® Ancamide® Ancamine® Ancarez®

Anquamine® Anquawhite® Curezol® Dicyanex®

Epilink® Epodil® Imicure® Nourybond®



ABOUT US

EVONIK IS ONE OF THE
WORLD LEADERS IN
SPECIALTY CHEMICALS.

Evonik's Crosslinkers Business Line offers a broad range of products and competences for coatings and adhesives, as well as for high-performance elastomers and composites. Besides products based on isophorone chemistry, the portfolio contains a full range of high quality epoxy curing agents and modifiers for a wide range of applications, including marine and protective coatings, civil engineering, adhesives and composites.

CONTENT

FOOTNOTES

- 1 Used with standard, undiluted liquid Bisphenol-A-epoxy, EEW 182-192.
- 2 phr: parts curing agent by weight per 100 parts by weight of epoxy resin.
- 3 Gel time or pot-life in 150g mass at 25°C for room temperature cures.
- 4 Beck-Koller thin film set timer (75 micron wet film) at 25°C phase III.
- 5 Heat distortion temperature (HDT) to ASTM D648.
 - a) System cured at ambient temperature for 7 days.
 - b) System cured 2 hours at 100°C.
- 6 AHEW = Equivalent Weight per active H.

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PRODUCT CATEGORIES OVERVIEW

<i>Category</i>	<i>Brand names</i>	<i>Chemical nature</i>	<i>Recommended application fields</i>
Ambient Cure Amine Curing Agents	Ancamide®	Modified polyamides; aliphatic amido amines	All major epoxy applications including solvent-borne and solvent-free systems
	Ancamine®	Modified polyamines	
Waterborne Amine Curing Agents	Anquamine®, Anquawhite®, Epilink®	Modified amines and polyamines	Protective and industrial concrete coatings Self-leveling and mortar floors and grouts Steel coatings Anti-corrosive primers
Amine Curing Agents for Heat-Cure	Ancamide®	Polyamides and amidoamines	Structural composites and adhesives
	Ancamine®	Aliphatic amines	
Catalysts and Accelerators	Ancamine®, Anchor®, Amicure®, Curezol®, Imicure®, Dicyanex®	Modified aliphatic amines and catalysts such as dicyandiamide	Structural composites and adhesives
Specialty Resins, Diluents and Modifiers	Ancarez®, Epodil®	Mono- and difunctional glycidyl ethers	All major epoxy applications
Adhesion Promoters for PVC Plastisols	Nourybond®	Modified polyamides	Adhesion promoting additives for PVC plastisols



GENERAL PERFORMANCE COMPARISON SUMMARY

WORKING EXAMPLES USED FOR ABOVE

SIMPLISTIC COMPARISON:

Polyamide: Ancamide® 3030
 Amidoamine: Ancamide® 506
 Cycloaliphatic-A: Ancamine® 2759
 Waterborne-S: Anquamine® 721
 Waterborne-D: Anquawhite® 100
 Aliphatic-MB: Ancamine® 2432

KEY

A: Adduct-type
 S: Solution
 MB: Mannich-base type
 D: Dispersion

Colour and Colour Stability	Viscosity	Pot-Life	Low Temperature Cure	Surface Film Appearance	Film Flexibility	Adhesion	Chemical Resistance	
							Acids	Solvents
Excellent	Low	Long	Good	Gloss	Excellent	Excellent	Excellent	Very good
Waterborne - D	Waterborne - D	Waterborne - D	Aliphatic-MB	Waterborne - D	Waterborne - S	Waterborne - S	Cycloaliphatic-A	Aliphatic-MB
Cycloaliphatic-A	Cycloaliphatic-A	Amidoamine	Waterborne - D	Waterborne - S	Polyamide	Polyamide	Aliphatic-MB	Cycloaliphatic-A
Waterborne - S	Amidoamine	Polyamide	Waterborne - S	Cycloaliphatic-A	Waterborne - D	Waterborne - D	Waterborne - D	Waterborne - D
Aliphatic-MB	Aliphatic-MB	Waterborne - S	Cycloaliphatic-A	Aliphatic-MB	Amidoamine	Amidoamine	Aliphatic-MB	Waterborne - S
Amidoamine	Waterborne - S	Cycloaliphatic-A	Aliphatic-MB	Polyamide	Waterborne - S	Cycloaliphatic-A	Waterborne - D	Waterborne - S
Polyamide	Polyamide	Aliphatic-MB	Polyamide	Amidoamine	Cycloaliphatic-A	Aliphatic-MB	Waterborne - S	Polyamide
Moderate	High	Short	Amidoamine	Amidoamine	Aliphatic-MB	Cycloaliphatic-A	Amidoamine	Amidoamine
				Grease	Fair	Moderate	Fair	Fair

AMBIENT CURE AMINE CURING AGENTS

* With bisphenol-A/F diglycidylether blend, Epodil® 748 reactive diluent diluted, EEW 190-200, viscosity ca. 1,000 mPa.s

** Measured at 75 °C

*** With bisphenol-A diglycidyl ether epoxy resin solution, EEW 500

Curing Agent	Generic Type	Max Colour (Gardner)	Viscosity (mPa.s@25°C)	Solids (%)	Amine Value (mgKOH/g)	Specific Gravity (@25°C)	AHEW ⁶	Loading ^{1,2} (PHR)	Gel Time ³ (min@25°C)	Thin Film Set ⁴ Time (h)	Tg or HDT ⁵ (°C)	Benefits	Civil Engineering	Metal Coatings
Ancamide® 260A	Polyamide	10	35-45 Pa.s	100	330-360	0.96	110	60	200	10	-	<ul style="list-style-type: none"> Industry standard Medium viscosity polyamide 		X
Ancamide® 500	Aliphatic Amidoamine	11	200-450	100	420-480	0.95	90	50	180	12	45	<ul style="list-style-type: none"> Low viscosity, long pot life curing agent that allow latitude with regards to mixing ratios It is ideal for bonding old to new concrete, crack injection, electrical encapsulation and for use in general adhesives 		X
Ancamide® 503	Aliphatic Amidoamine	10	300-500	100	490-520	0.95	95	50	70	9	48	<ul style="list-style-type: none"> Low viscosity, with moderately fast cure Ideal for bonding old to new concrete, crack injection, electrical encapsulation and for use in general adhesives 	X	
Ancamide® 506	Aliphatic Amidoamine	13	200 – 500	100	410 – 440	0.93	110	55	385	23	45	<ul style="list-style-type: none"> Very long pot life and good through cure with low exotherm In high-solids coatings, often mixed with cyclo-aliphatic curing agents 		X
Ancamide® 700B75	Polyamide Adduct	≤8	4000 – 8000	75	240	0.96	170	90	200 – 250	-	-	<ul style="list-style-type: none"> Good adhesion and cure under adverse conditions of high humidity and low temperature No induction time required. Product at 75% in butanol 		X
Ancamide® 910	Polyamide	6	6000	-	118	0.99	230	110 – 125	120	8	-	<ul style="list-style-type: none"> Outstanding flexible/peel strength, excellent thermal shock resistance and good electrical properties Lower viscosity than conventional polyamides 		X
Ancamide® 2050	Polyamide Adduct	12	2000 – 5000	100	210 – 230	1.02	150	70 – 100	140	7 (70PHR)	-	<ul style="list-style-type: none"> With liquid epoxy resin, it achieves high gloss, flexibility, hardness, and reverse impact resistance comparable to traditional solvent-cut polyamide/solid epoxy resin systems No induction required Non-critical loading (70-10 phr) 		X
Ancamide® 2353	Modified Polyamide	9	2800 – 3500	100	300 – 360	1.01	114	60	65	5	-	<ul style="list-style-type: none"> Good low temperature cure The best chemical resistance from our range of polyamides 	X	X
Ancamide® 2386	Modified Amidoamine	10	170 – 520	100	245 – 385	1.00	93	49	135	8	51	<ul style="list-style-type: none"> Low bloom tendency, high gloss and good low temperature cure compared to other amidoamines Commonly used in crack injection, primers and anti-corrosive primers 	X	X
Ancamide® 2426	Modified Amidoamine	8	500 – 750	100	360 – 400	0.96	93	49	285	13	46	<ul style="list-style-type: none"> A plasticizer-free curing agent Long pot life with excellent blush resistance Excellent hardness development and good resistance to aqueous reagents Good color stability 		X
Ancamide® 2443	Modified Amidoamine	9	30 – 100	100	510 – 560	0.97	86	45	250	11	56	<ul style="list-style-type: none"> A very low-viscosity, plasticizer-free amidoamine with long pot life and good blush resistance Develops good adhesion to concrete and poorly prepared substrates Also ideal for use as a viscosity reducer or pot life extender for other systems 		X
Ancamide® 2445	Modified Polyamide	7	4500 – 6500	100	180 – 220	1.03	150	70 – 100	90	5	-	<ul style="list-style-type: none"> With excellent flexibility, impact resistance and low temperature cure profile, ideal for use in high solids industrial maintenance and marine coatings Also suitable for use in adhesives, putties, sealants and flexible cable jointing 		X

Curing Agent	Generic Type	Max Colour (Gardner)	Viscosity (mPa.s@25°C)	Solids (%)	Amine Value (mgKOH/g)	Specific Gravity (@25°C)	AHEW	Loading (PHR)	Gel Time (min@25°C)	Thin Film Set Time (h)	Tg or HDT (°C)	Benefits	Civil Engineering	Metal Coatings
Ancamide® 2573	Modified Polyamide	8	1200 – 2200	100	275 – 290	1.01	115	60	80	6	-	<ul style="list-style-type: none"> This low viscosity curing agent exhibits fast cure at low temperatures and offers good adhesion onto damp concrete Ideal as a surface tolerant primer and for use in industrial/marine coatings 	X	X
Ancamide® 2634	Reactive Polyamide Solution	7	1700	80	335	0.96	95	50	>180	7	-	<ul style="list-style-type: none"> Modified polyamide for cost effective protective coatings and interior pipeline solvent based systems This grade offers good cure speed, high corrosion/chemical and cathodic disbondment 		X
Ancamide® 2652	Modified Polyamide	8	2000	80	132	0.99	250	90 – 130	Depends on solvent blend	Depends on solvent blend	-	<ul style="list-style-type: none"> Provides long overcoatability with epoxy and polyurethanes Maintaining the performance properties from a polyamide 		X
Ancamide® 2769	Modified Polyamide	10	100 – 160	100	400 – 440	0.97	150	65 – 80	120	9	-	<ul style="list-style-type: none"> Low viscosity Plasticiser-free curative that delivers polyamide performance 	X	X
Ancamide® 3030	Polyamide	10	300-600**	100	370 – 410	0.96	95	50	80 – 140	10	-	<ul style="list-style-type: none"> Industry standard Low viscosity polyamide 		X
Ancamide® 3200	Modified Polyamide Adduct	10	1000 – 2000	100	250 – 290	1.01	115	60	75 – 80	-	-	<ul style="list-style-type: none"> Excellent adhesion to damp substrates, good corrosion protection, rapid property development 	X	X
Ancamide® 3419	Aliphatic Amidoamine	10	50 – 160	100	180 – 300	0.94	140	75	500 – 550	-	-	<ul style="list-style-type: none"> Low viscosity amidoamine offering long pot-life and high temperature performance. Raw materials are included on the KTW positive list 		X
Ancamide® 3444	Modified Polyamide Adduct	10	500 – 1500	100	280 – 330	1.03	115	60	40 – 50	-	-	<ul style="list-style-type: none"> Excellent adhesion to damp substrates, good corrosion protection, rapid property development 	X	X
Ancamide® 3622	Polyamide Adduct	10	4000 – 12000	70	140 – 175	0.96	340	50***	500 – 1000	-	-	<ul style="list-style-type: none"> Recommended for use in marine and industrial maintenance coatings, the product requires no induction time and cure is unaffected by humidity up to 70% 		X
Ancamine® 2759	Modified Cycloaliphatic Polyamine Adduct	2	250 – 400	100	290 – 320	1.04	95	50	20 – 25	4	-	<ul style="list-style-type: none"> Balance of fast cure speed, high resistance to carbamation and waterspotting Also offering high chemical resistance 	X	
Ancamine® 2760	Modified Cycloaliphatic Polyamine Adduct	2	300 – 600	100	235 – 275	1.02	115	60	50 – 60	7	-	<ul style="list-style-type: none"> Ambient temperature curing agent providing an excellent balance of properties in terms of handling, cure speed and UV durability 		X
Ancamine® 3456	Modified Polyamine	6	500 – 1500	100	160 – 190	0.97	250	125 – 135	35	8	-	<ul style="list-style-type: none"> Flexible curative for use in adhesives, coatings and floorings Free from benzyl alcohol, alkyl phenols and bisphenol A 	X	X
Ancamine® 1618	Modified Cycloaliphatic Amine Adduct	2	300 – 600	100	260 – 285	1.03	115	60	40	7	46	<ul style="list-style-type: none"> Good color and color stability Produces high-gloss, non-blushing films with good chemical resistance 	X	X
Ancamine® 1769	Modified Adduct	4	600 – 900	100	975	1.01	48	25	24	4	53 – 99	<ul style="list-style-type: none"> Designed for use in potting, adhesives, gel-coats, small and heavily filled castings Offering low vapour pressure, low shrinkage and reduced skin irritation 	X	
Ancamine® 2165	Modified Aliphatic Amine	2	20	100	690 – 720	1.04	50	25	50	8	-	<ul style="list-style-type: none"> An ultra-low-viscosity modified aliphatic amine designed for use with diluted liquid epoxy resins in crack injection, concrete impregnation, and patch repair mortars 	X	
Ancamine® 2280	Modified Polycycloaliphatic Amine	13	360 – 700	100	230 – 260	1.08	110	58	50	7	50	<ul style="list-style-type: none"> Offers high chemical resistance similar to some aromatic systems Ideal for industrial chemical resistant flooring and secondary containment 	X	X

Curing Agent	Generic Type	Max Colour (Gardner)	Viscosity (mPa.s@25°C)	Solids (%)	Amine Value (mgKOH/g)	Specific Gravity (@25°C)	AHEW	Loading (PHR)	Gel Time (min@25°C)	Thin Film Set Time (h)	Tg or HDT (°C)	Benefits	Civil Engineering	Metal Coatings
Ancamine® 2410	Isolated Adduct	3	20500	100	444 – 480	1.17	85.5	45	-	-	-	<ul style="list-style-type: none"> An isolated adduct with low odour and low free amine content, for use in FDA compliant coatings, tank linings and other chemical resistant systems; offers both fast dry speeds and good chemical resistance Due to its high viscosity this curing agent is commonly used as a co-curable or in its solvented form 		X
Ancamine® 2422	Modified Amine	3	2000 – 2500	100	665 – 690	1.12	49	26	-	-	-	<ul style="list-style-type: none"> A high functional phenol free aliphatic amine imparting good working time with multi-functional / novolac epoxy resins Provide high chemical resistance against most aggressive reagents making it ideal for tank linings and secondary containment This product requires plasticisation or heat cure to achieve full properties 		X
Ancamine® 2432	Modified Aliphatic Amine	4	200 – 400	100	350 – 380	1.10	88	46	27	2	55	<ul style="list-style-type: none"> Outstanding resistance to a wide range of chemicals A fast-curing amine with good working life Rapid development of properties at low temperature Phenol-free and low viscosity 	X	X
Ancamine® 2519	Modified Cycloaliphatic Amine Adduct	2	100 – 300	100	300 – 330	1.01	95	50	23	4	45	<ul style="list-style-type: none"> A low viscosity curing agent which exhibits good carbamation resistance at temperatures down to 10°C It can be used to formulate high solids coatings, self leveling and screed floors with good all round performance 	X	X
Ancamine® 2609W	Mannich Base	5	300 – 600	100	360 – 420	1.01	75	40	15	2	-	<ul style="list-style-type: none"> Low viscosity Mannich base curing agent that is moisture tolerant Suitable for potable water and food contact coatings 	X	X
Ancamine® 2672	Modified Polycycloaliphatic Amine	5	100 – 300	100	280 – 340	1.06	95	50	30	5	48	<ul style="list-style-type: none"> Provides good low temperature reactivity, low viscosity and high acid resistance, making it the ideal choice for chemically resistant primers, mortar floors and tank linings 	X	X
Ancamine® 2686	Modified Polycycloaliphatic Amine	12	100 – 400	100	300 – 350	1.02	95	50	30-35	4	45	<ul style="list-style-type: none"> Ideally used in cost-effective primers and grouts The product delivers high mechanical build, rapid cure and is suitable for lower temperature use 	X	
Ancamine® 2692	Modified Polycycloaliphatic Amine	4	100 – 400	100	300 – 350	1.02	95	50	35	4	50	<ul style="list-style-type: none"> Balance of high mechanical build, rapid cure and lower temperature use Positioned for primer and non-colour sensitive coatings 	X	
Ancamine® 2712M	Modified Polyamine	7	350 – 650	100	500 – 560	1.00	95	50 *	30 – 35*	7 *	-	<ul style="list-style-type: none"> Balance of fast cure speed, high resistance to carbamation and waterspotting, while also offering high mechanical and low emissions properties Can be used for anti-corrosion primers 	X	X
Ancamine® 2719	Mannich Base	14	300 – 500	100	340 – 380	1.03	75	40	20	3	-	<ul style="list-style-type: none"> Nonyl- and p-tert-butyl phenol free aliphatic polyamine Mannich base curing agent Suitable for potable water and food contact coatings 	X	X
Ancamine® 2726	Modified Cycloaliphatic Polyamine Adduct	2	300 – 600	100	240 – 290	1.03	115	50 – 60	40 – 50	8	-	<ul style="list-style-type: none"> The product offers an excellent balance of properties for use in protective primers and coating onto metal and concrete substrates 		X
Ancamine® 2728	Modified Aliphatic Polyamine Adduct	7	1000 – 2500	59 – 61	250 – 290	1.02	233	80 – 120	95	5	-	<ul style="list-style-type: none"> Fast cure under adverse conditions of high humidity and low temperature 		X
Ancamine® 2739	Modified Polyamine	3	350-650	100	525-575	1.00	95	45 – 50 *	70 – 90 * @ 23°C	9 *	-	<ul style="list-style-type: none"> Free of alkyl-substituted phenols, facilitating in low volatile organic component coating and flooring formulations and allows the use in emission compliant systems Fast cure and development of properties at ambient and low temperature High resistance to carbamation and water-spotting 	X	X

<i>Curing Agent</i>	<i>Generic Type</i>	<i>Max Colour (Gardner)</i>	<i>Viscosity (mPa.s@25°C)</i>	<i>Solids (%)</i>	<i>Amine Value (mgKOH/g)</i>	<i>Specific Gravity (@25°C)</i>	<i>AHEW</i>	<i>Loading (PHR)</i>	<i>Gel Time (min@25°C)</i>	<i>Thin Film Set Time (h)</i>	<i>Tg or HDT (°C)</i>	<i>Benefits</i>	<i>Civil Engineering</i>	<i>Metal Coatings</i>
Ancamine® 2802	Modified Polyamine Adduct	3	450 – 650	100	410 – 475	1.02	87	45 – 50	35 – 40	10	-	<ul style="list-style-type: none"> Ambient temperature curing agent with excellent UV durability and can be used in low emission coatings 	X	
Ancamine® 2806	Modified Cycloaliphatic Polyamine Adduct	2	30 – 100	100	310 – 340	1.00	76	40	100 – 120	12	-	<ul style="list-style-type: none"> Ambient temperature curative to enhance pot-life of cycloaliphatic amine or for use in warmer climate conditions 	X	
Ancamine® 3215	Modified Aliphatic Polyamine	3	15 – 45	100	435 – 485	1.04	95	50	15 – 20	4	-	<ul style="list-style-type: none"> Low viscosity, excellent aesthetics and moderately fast cure speed 	X	
EDA Adduct 870-XB-50	Epoxy EDA isolated Adduct Solution in Butanol/ Xylene	5	1500 – 4000	50	76 – 104	0.99	370	80 – 100	-	-	-	<ul style="list-style-type: none"> Isolated amine adduct with very low odour, free-amine content, and irritation potential Non-yellowing, bloom-free films. Improved cure under adverse conditions without induction. Good water resistance 		X



WATERBORNE AMINE CURING AGENTS

* Loading (PHR) for Anquamine® 419 has been calculated when used in combination with a solid epoxy resin dispersion such as Ancarez® AR-555.

Curing Agent	Generic Type	Max Colour (Gardner)	Viscosity (Pa.s@25°C)	Solids (%)	Amine Value (mgKOH/g)	Specific Gravity (@25°C)	AHEW ⁶	Loading ^{1,2} (PHR)	Pot Life ³ (Hour)	Benefits	Civil Engineering	Metal Coatings
Anquamine® 287	Aqueous Solution of Modified Amine Adduct	12	0.4 – 1	49 – 51	155 – 175	1.08	240	125	1	<ul style="list-style-type: none"> Mannich base adduct specifically developed for concrete primer applications and cement-based systems Primers exhibit fast drying time, quick return to service, zero-VOC The product easily mixes with water and resin, can be brushed, rolled or spray applied 	X	
Anquamine® 401	Aqueous Solution of Modified Amine Adduct	12	25 – 40	69 – 71	240 – 260	1.09	166	60 – 90	1 – 1.5	<ul style="list-style-type: none"> A high solids, rapid curing hardener that can be used with both liquid epoxy resin and solid epoxy resin dispersions for concrete/metal coatings and primers Anquamine® 401 can also be used for ECC (epoxy cement concrete) 	X	X
Anquamine® 419	Aqueous Solution of Modified Amine Adduct	7	8 – 12	59 – 61	150 – 190	1.08	284	20 – 32*	4 – 6	<ul style="list-style-type: none"> Designed for use with solid epoxy resin dispersions to give fast dry times, and excellent corrosion and humidity resistance Exhibits good gloss and good gloss retention Excellent adhesion to steel makes it an ideal product for metal primers 		X
Anquamine® 721	Aqueous Solution of Modified Amine Adduct	5	25 – 45	48 – 52	150 – 190	1.08	300	140 – 180	2 – 3	<ul style="list-style-type: none"> Specifically developed for cost effective concrete floor coatings at up to 300 micron applied film thickness It easily emulsifies standard liquid epoxy resins, offers excellent adhesion to damp concrete and has universal pigment acceptance 	X	
Anquamine® 735	Aqueous Solution of Modified Amine Adduct	4	20	53 – 57	175	1.08	200	100	1	<ul style="list-style-type: none"> Designed for cost-effective high film build concrete coatings Particularly self-levelling systems of 1 – 3 mm film thickness 	X	
Anquawhite® 100	Aqueous Dispersion of Modified Amine Adduct	Dispersion	0.2	53 – 57	100	1.05	350	180	6	<ul style="list-style-type: none"> Provides 6 – 8 hours pot life with liquid epoxy resins Addresses the typically short pot life of 1 – 2 hours from current two component, water-based systems Extremely low viscosity, low color, and good retention of color upon UV exposure 	X	
Epilink® 360	Aqueous Solution of Modified Polyamide	16	30 – 50	49 – 51	150 – 190	1.05	240	100 – 150	1	<ul style="list-style-type: none"> Cost-effective primers with moderate cure speed and excellent adhesion May be used with co-solvent for additional viscosity dilution 	X	
Epilink® 701	Aqueous Emulsion of Modified Polyamine Adduct	Emulsion	5 – 10	53 – 57	130 – 165	1.08	300	140 – 170	2 – 4	<ul style="list-style-type: none"> Fast film drying and cure with liquid epoxy Excellent anti-corrosive and flash rust resistance Low temperature cure down to 5°C Water vapour permeability 	X	X



AMINE CURING AGENTS FOR HEAT-CURE

* Measured at 75 °C

Curing Agent	Chemical nature	Appearance	Max Colour (Gardner)	Viscosity (mPa.s@25°C)	Amine Value (mgKOH/g)	Specific Gravity (@25°C)	AHEW	Use Level (PHR)	Gel Time (minutes)	Tg or HDT(°C)	Benefits	Composites	Adhesives
Ancamide® 261A	Polyamide	Liquid	7	30.000 – 50.000	320 – 350	0.96	120	65	75	-	<ul style="list-style-type: none"> Suitable for coatings and adhesives applications Offers high adhesion and good colour stability 		X
Ancamide® 3030	Polyamide	Liquid	10	300-600*	370 – 410	0.96	95	50	80 – 140	-	<ul style="list-style-type: none"> General purpose polyamide for liquid epoxy resins Offers low viscosity, moderate pot life and good adhesion 		X
Ancamide® 500	Aliphatic Amidoamine	Liquid	11	200 – 450	420 – 480	0.95	90	50	180	45	<ul style="list-style-type: none"> Offers lower viscosity compared to polyamides Exhibits long pot life and non-critical loading 	X	X
Ancamide® 506	Aliphatic Amidoamine	Liquid	13	200 – 500	410 – 440	0.93	110	55	385	45	<ul style="list-style-type: none"> Offers longest pot life and lowest viscosity of amidoamines Very low exotherm; -non-critical loading Suitable for casting and wet lay-up laminating 	X	X
Ancamide® 910	Polyamide	Liquid	6	6000	118	0.99	230	110 – 125	120	25	<ul style="list-style-type: none"> Offers outstanding flexibility, peel strength and thermal shock resistance Exhibits lower viscosity than standard polyamides Suitable for general purpose applications, especially two-component adhesives 		X
Ancamine® 1769	Modified Amine	Liquid	4	600 – 900	975	1.01	48	25	24	99	<ul style="list-style-type: none"> Modified polyamine derived from triethylenetetramine Minimized skin irritation potential due to hydroxylation Excellent chemical resistance Good mechanical properties 	X	X
Ancamine® 1922A	Polyetheramine	Liquid	1	10	507	1.0	55	29	57	48	<ul style="list-style-type: none"> Offers very low viscosity Gives excellent toughness and thermal shock resistance Suitable for structural adhesives and composite binders 		X
Ancamine® 2167	Polycycloaliphatic Amine	Liquid	3	210	520	0.98	53	28	210	161	<ul style="list-style-type: none"> Offers good impact resistance, fracture toughness and excellent thermal and chemical resistance Suitable industrial composite applications 	X	
Ancamine® 2264	Polycycloaliphatic Amine	Liquid	9	2600	520	1.00	54	29	195	162	<ul style="list-style-type: none"> Ideal alternative to aromatic diamines Offers low viscosity and long pot-life at moderate temperatures Excellent mechanical properties and high heat resistance Suitable for filament winding, laminating, casting and tooling 	X	
Ancamine® 2422	Aliphatic Amine	Liquid	5	1500 – 2500	660 – 675	1.12	49	26	-	-	<ul style="list-style-type: none"> High functionality designed for use in two package epoxy formulations Excellent chemical resistance and pot life 	X	
Ancamine® 3456	Modified Polyamine	Liquid	6	500 – 1500	160 – 190	0.97	250	125 – 135	35	-	<ul style="list-style-type: none"> Offers excellent flexibility Suitable for fast curing 		X

CATALYSTS AND ACCELERATORS

* 30 min at 180°C
 ** Gel at 80°C
 *** 4h at 140°C

Curing Agent	Generic Type	Appearance	Melting Point (°C)	Amine Value (mgKOH/g)	Use Level (sole)	DSC Activation Temperat. (sole) (°C)	T _g or HDT (sole) (°C)	Latency (months @40°C)	Benefits	Composites	Adhesives
Amicure® CG1200G	Dicyanamide	White Powder	207 – 211	-	4 – 15	165	121 *	>6	<ul style="list-style-type: none"> Particle size of 90% <30 microns with 1.5% flow aid Recommended application fields: powder coatings, pre-pregs, adhesives and laminates 	X	X
Amicure® DBU-E	Catalyst	Light Yellow Liquid	-	-	1 – 5	95	-	>24 (20°C)	<ul style="list-style-type: none"> Diazabicycloundecene Highly efficient accelerator suitable for phenolic novolacs, epoxy anhydride systems and other epoxies 	X	
Amicure® UR2T	Urea	White Powder	182 – 190	-	0.5 – 3.0	141	118	>24 (20°C)	<ul style="list-style-type: none"> 1,1'-(4 methyl-m-phenylene) bis (3,3-dimethyl) urea Substitute for chlorophenyl ureas Combines excellent latency at ambient temperature with rapid heat cure Accelerator for dicyandiamide cured epoxy resins 	X	X
Ancamine® 2014AS	Modified Aliphatic Amine	White Powder	96	180 – 190	25 – 30	109	75	>3	<ul style="list-style-type: none"> Sole curing agent or accelerator for latent amine curing agents (use level 2 – 7) Moderate reactivity and high shelf life Excellent adhesion to metals and plastics 	X	X
Ancamine® 2014FG	Modified Aliphatic Amine	White Powder	96	180 – 190	25 – 30	109	75	1	<ul style="list-style-type: none"> Higher reactivity than Ancamine® 2014AS- Effective accelerator at moderate cure temperature (80 – 100°C) Improved adhesion strength 	X	X
Ancamine® 2337S	Modified Aliphatic Amine	Light Yellow Powder	63 – 78	260	45	70	70	> 6 (20°C)	<ul style="list-style-type: none"> Excellent low temperature reactivity above 70°C Rapid development of green strength Suitable for 1k adhesives and hot-melt prepregs 	X	X
Ancamine® BDMA	Benzyl-dimethylamine	Pale Yellow Liquid	-	-	0.5 – 12	-	-	-	<ul style="list-style-type: none"> Versatile epoxy accelerator for a wide variety of curing agents Application in rapid curing adhesives, electrical laminates and encapsulation 	X	X
Ancamine® K54	Catalyst	Amber Liquid	-	610 – 635	1 – 15	-	-	>24 (20°C)	<ul style="list-style-type: none"> 2,4,6-Tri (dimethylaminomethyl) phenol Act as epoxy homopolymerization catalysts Suitable for epoxy resins cured with a wide variety of hardener types Application in adhesives and high performance composites 	X	
Ancamine® K61B	Catalyst	Amber Liquid	-	235 – 248	10 – 12	-	-	>24 (20°C)	<ul style="list-style-type: none"> Tris-(dimethylaminomethyl) phenol tri(2-ethyl hexoate)-an amine salt catalyst Provides longer pot life, lower exotherm and lower shrinkage than Ancamine K54 For use up to 80°C 	X	
Anchor® 1040	Modified Amine Complex of BF3	Orange-red Liquid, viscosity 20 Pa.s	-	-	7 – 12	100	130 ***	6 – 10 weeks	<ul style="list-style-type: none"> Chemically modified amine complex of boron trifluoride Good solubility in liquid epoxy resins Offer reduced hygroscopicity 	X	
Anchor® 1115	Modified Amine Complex of BF3	Dark Liquid, viscosity 1.7 Pa.s	-	-	5 – 10	75	140 ***	6 – 10 weeks	<ul style="list-style-type: none"> Chemically modified amine complex of boron trifluoride Good solubility in liquid epoxy resins Offer reduced hygroscopicity 	X	



<i>Curing Agent</i>	<i>Generic Type</i>	<i>Appearance</i>	<i>Melting Point (°C)</i>	<i>Amine Value (mgKOH/g)</i>	<i>Use Level (sole)</i>	<i>DSC Activation Temperat. (sole) (°C)</i>	<i>Tg or HDT (sole) (°C)</i>	<i>Latency (months @40°C)</i>	<i>Benefits</i>	<i>Composites</i>	<i>Adhesives</i>
Catalyst 1786B	Catalyst	Amber Liquid	-	-	1 – 4	-	-	-	<ul style="list-style-type: none"> • P-toluenesulphonate salt of 2-amino-2-methyl-1-propanol • 50wt% solution in butanol • Recommended application fields: white goods, OEM, drum and pail coatings 	X	X
Curezol® 2MZ Azine 10mm	Micronised Solid Imidazole	Pale Yellow Powder	248 – 258	-	6 – 8	145	156 **	45 days	<ul style="list-style-type: none"> • Very long latency • High heat distortion temperature • Suitable as sole curing agents or to accelerate Dicy / anhydride formulations 	X	X
Dicyanex® 1400B	Dicyanamide Catalyst	White Powder	207 – 211	-	4 – 15	165	121 *	>6	<ul style="list-style-type: none"> • Particle size of 90% <10 microns with 3.0% flow aid • Finest particle size available for maximum reactivity 	X	X
Imicure® EMI-24	Liquid Imidazole	Pale Yellow Liquid	-	-	1 – 4	95	156 **	9 hours	<ul style="list-style-type: none"> • High reactivity • Medium viscosity • Suitable as sole curing agents or to accelerate Dicy / anhydrides 	X	X



SPECIALTY RESINS, DILUENTS AND MODIFIERS

* Theoretical, as supplied. When EEW 1300 is assumed, the best overall results are obtained in the range of 0.8:1 to 1.2:1 (epoxy:amine) stoichiometry.

Curing Agent	Generic Type	Max Colour (Gardner)	Viscosity (Pa.s@25°C)	Solids (%)	Specific Gravity (@25°C)	Epoxy Equivalent Weight (EEW)	Free ECH Content (PPM)	Hydrolyzable Chlorine (%)	Moisture Content (%)	Benefits	Civil Engineering	Metal Coatings	Composites
Ancarez® AR-555	Water-based Solid Epoxy Resin Dispersion	Dispersion	150 – 300	55	1.09	550 *	-	-	-	<ul style="list-style-type: none"> Zero-VOC, novel, low-viscosity, solid epoxy resin dispersion (supplied at 55% solids) May be used with products such as our Anquamine® 419, Anquamine® 401 and Anquawhite® 100 for rapid cure water based systems It is ideal for concrete primers/coatings, industrial maintenance primers/top coats 	X	X	
Ancarez® 2364	Acrylate Functional Urethane Resin	2	25 – 35	100	1.1	450 – 480	-	-	-	<ul style="list-style-type: none"> Moderate viscosity resin offering high flexibility Stable over long periods of time when mixed with epoxy resin and completely reacted when cured with amine curing agents 	X	X	
Epodil® 748	Alkyl (C12–C14) Glycidyl Ether	1	5 – 20	100	0.89	275 – 300	10 max	0.1 max	0.1 max	<ul style="list-style-type: none"> General-purpose diluent Low toxicity and low vapor pressure Slows reactivity Good viscosity reduction Improves flexibility and adhesion to nonpolar surfaces 	X	X	X
Epodil® 750	1-4 Butanediol Diglycidyl Ether	1	15 – 20	100	1.11	120 – 130	10 max	0.1 max	0.1 max	<ul style="list-style-type: none"> Widely used in the civil engineering and composite sectors Its combination of dilution profile and low vapour pressure make it the preferred choice 	X	X	X
Epodil® LV5	Hydrocarbon Resin	<2	50	100	1.02	-	-	<5ppm	0,01%	<ul style="list-style-type: none"> A chemically-inert, low-viscosity, liquid hydrocarbon resin Acts as a surface tension reducer, as a pigment wetting aid, and as an adhesion promoter 	X	X	



ADHESION PROMOTERS FOR PVC PLASTISOLS

* 75°C

<i>Curing Agent</i>	<i>Generic Type</i>	<i>Appearance</i>	<i>Colour (Gardner)</i>	<i>Amine Value (mgKOH/g)</i>	<i>Viscosity (Pa.s@25°C)</i>	<i>Use Level (PHR)</i>	<i>Typical Cure Schedule</i>	<i>Benefits</i>
Nourybond® 272	Modified Polyamide	Liquid	10	185 – 200	15 – 35	1 – 4	30 min@130°C	<ul style="list-style-type: none"> • General purpose adhesion promoter • Provides adhesion to a wide variety of automotive electrodeposition primers • Suitable for underbody coatings and non-visible seam sealers
Nourybond® 276	Modified Polyamide	Liquid	10	110 – 130	8 – 28	1 – 2	30 min@120°C	<ul style="list-style-type: none"> • Allows low temperature cure (120°C) • Offers excellent rheological properties, high strength and superior colour stability • Suitable for anti-chip primers, visible seam sealers and low bake PVC plastisols
Nourybond® 316	Modified Polyamide	Liquid	14	260 – 310	1 – 2*	0.5 – 2	30 min@130°C	<ul style="list-style-type: none"> • Highly effective adhesion promoter with low usage level • Suitable for underbody coating and sealer, non visible seam sealers and anti-chip primers
Nourybond® 350	Modified Polyamide	Liquid	10	130 – 170	0.5 – 2	1 – 3	30 min@130°C	<ul style="list-style-type: none"> • Offer good sag resistance • Good rheological properties allow for broad applications • Suitable for underbody coating and sealer and non visible seam sealer
Nourybond® 356	Polyamidoamide	Liquid	12	185 – 200	1 – 4,5	0.5 – 2	30 min@130°C	<ul style="list-style-type: none"> • Offer good sag resistance • Good rheological properties allow for broad applications • Suitable for underbody coating and sealer and non visible seam sealer



DEFINITIONS & CALCULATIONS

Amine Value The measurement by means of acid/base titration of the amine nitrogen content in a curing agent. Amine value is expressed in units of mg of KOH equivalent to the basic nitrogen content in a 1g sample (mg KOH/g).

Pot Life The 'working time' that mixed resin and curing agent exhibits.

Carbamation The surface defect of a coating that can occur when curing at too high a humidity or too low a temperature. It is the reaction of carbon dioxide in the air with amine.

EEW Epoxide Equivalent Weight.

AHEW Amine Hydrogen Equivalent Weight.

Part A Epoxy resin component. Part B Curing Agent component.

PHR Parts per Hundred of Resin (100g)

Calculating the quantity of curing agent required to cure 100g of epoxy resin (PHR):

$$\frac{\text{Amine Hydrogen Equivalent Weight (AHEW)}}{\text{Epoxy Equivalent Weight (EEW)}} \times 100 = \text{PHR}$$

Calculating the Amine Hydrogen Equivalent Weight for a blend of curing agents:

$$\frac{\text{Total Weight of Curing Agent (g)}}{\left(\frac{\text{Weight (g) of Curing Agent1}}{\text{AHEW1}}\right) + \left(\frac{\text{Weight (g) of Curing Agent2}}{\text{AHEW2}}\right)} = \text{AHEW 1+2 (curing agent blend)}$$

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